Cochrane Library

Cochrane Database of Systematic Reviews

Probiotics for treating acute infectious diarrhoea (Review)

Allen SJ, Martinez EG, Gregorio GV, Dans LF

Allen SJ, Martinez EG, Gregorio GV, Dans LF.
Probiotics for treating acute infectious diarrhoea.
Cochrane Database of Systematic Reviews 2010, Issue 11. Art. No.: CD003048.
DOI: 10.1002/14651858.CD003048.pub3.

www.cochranelibrary.com

WILEY

[Intervention Review]

Probiotics for treating acute infectious diarrhoea

Stephen J Allen[1], Elizabeth G Martinez[2], Germana V Gregorio[2], Leonila F Dans[3]

[1]School of Medicine, Swansea University, Swansea, UK. [2]Department of Pediatrics, University of the Philippines College of Medicine, Manila, Philippines. [3]Departments of Pediatrics and Clinical Epidemiology, University of the Philippines College of Medicine, Manila, Philippines

Contact address: Stephen J Allen, School of Medicine, Swansea University, Room 314, The Grove Building, Singleton Park, Swansea, West Glamorgan, SA2 8PP, UK. S.J.Allen@swansea.ac.uk.

Editorial group: Cochrane Infectious Diseases Group.
Publication status and date: Unchanged, published in Issue 5, 2019.

Citation: Allen SJ, Martinez EG, Gregorio GV, Dans LF. Probiotics for treating acute infectious diarrhoea. *Cochrane Database of Systematic Reviews* 2010, Issue 11. Art. No.: CD003048. DOI: 10.1002/14651858.CD003048.pub3.

ABSTRACT

Background

Probiotics may offer a safe intervention in acute infectious diarrhoea to reduce the duration and severity of the illness.

Objectives

To assess the effects of probiotics in proven or presumed acute infectious diarrhoea.

Search methods

We searched the Cochrane Infectious Diseases Group's trials register (July 2010), the Cochrane Controlled Trials Register (*The Cochrane Library* Issue 2, 2010), MEDLINE (1966 to July 2010), EMBASE (1988 to July 2010), and reference lists from studies and reviews. We also contacted organizations and individuals working in the field, and pharmaceutical companies manufacturing probiotic agents.

Selection criteria

Randomized and quasi-randomized controlled trials comparing a specified probiotic agent with a placebo or no probiotic in people with acute diarrhoea that is proven or presumed to be caused by an infectious agent.

Data collection and analysis

Two reviewers independently assessed the methodological quality of the trial and extracted data. Primary outcomes were the mean duration of diarrhoea, stool frequency on day 2 after intervention and ongoing diarrhoea on day 4. A random-effects model was used.

Main results

Sixty-three studies met the inclusion criteria with a total of 8014 participants. Of these, 56 trials recruited infants and young children. The trials varied in the definition used for acute diarrhoea and the end of the diarrhoeal illness, as well as in the risk of bias. The trials were undertaken in a wide range of different settings and also varied greatly in organisms tested, dosage, and participants' characteristics. No adverse events were attributed to the probiotic intervention.

Probiotics reduced the duration of diarrhoea, although the size of the effect varied considerably between studies.

The average of the effect was significant for mean duration of diarrhoea (mean difference 24.76 hours; 95% confidence interval 15.9 to 33.6 hours; n=4555, trials=35) diarrhoea lasting ≥4 days (risk ratio 0.41; 0.32 to 0.53; n=2853, trials=29) and stool frequency on day 2 (mean difference 0.80; 0.45 to 1.14; n=2751, trials=20).

The differences in effect size between studies was not explained by study quality, probiotic strain, the number of different strains, the viability of the organisms, dosage of organisms, the causes of diarrhoea, or the severity of the diarrhoea, or whether the studies were done in developed or developing countries.

Authors' conclusions

Used alongside rehydration therapy, probiotics appear to be safe and have clear beneficial effects in shortening the duration and reducing stool frequency in acute infectious diarrhoea. However, more research is needed to guide the use of particular probiotic regimens in specific patient groups.

22 March 2019

Update pending

Authors currently updating

The update is due to be published in 2019.

PLAIN LANGUAGE SUMMARY

Probiotics for treating acute infectious diarrhoea

Episodes of acute infectious diarrhoea remain a major disease burden throughout the world, especially in developing countries. They are due to infection by many different organisms. Most episodes are self-limiting and usually investigations are not done to identify the infectious agent. The main risk to health is dehydration and management aims to improve and maintain hydration status. However, rehydration fluids do not reduce the stool volume or shorten the episode of diarrhoea. Probiotics are "friendly" bacteria that improve health and are not harmful in themselves. A number of randomized controlled trials have been done to see whether probiotics are beneficial in acute infectious diarrhoea. We have searched for as many of these trials as possible and collected together the data in a systematic way to try to discover whether or not probiotics are beneficial in acute diarrhoea. We identified 63 trials, which included a total of 8014 people - mainly infants and children. Probiotics were not associated with any adverse effects. Nearly all studies reported a shortened duration of diarrhoea and reduced stool frequency in people who received probiotics compared to the controls. Overall, probiotics reduced the duration of diarrhoea by around 25 hours, the risk of diarrhoea lasting four or more days by 59% and resulted in about one fewer diarrhoeal stool on day 2 after the intervention. However, there was very marked variability in the study findings and so these estimates are approximate. We concluded that these results were very encouraging but more research is needed to identify exactly which probiotics should be used for which groups of people, and also to assess the cost effectiveness of this treatment.